

ABSTRACT

The present invention relates to an electric field sensor including: a light source (1); an electro optic crystal (7) which is applied with an electric field based on a signal under test, in which a birefringent index changes according to the electric field, and which changes a polarization state of light incident from the light source according to the birefringent index and emits the light; and a detector (9, 17, 19, 21) that detects an electric signal according to the change of the polarization state of the light emitted from the electro optic crystal (7). Further, the electric field sensor includes: a signal electrode (11) for applying the electric field based on the signal under test to the electro optic crystal (7); a counter electrode (12) that forms a pair with the signal electrode (11); and an auxiliary electrode (61) that is electrically connected to the counter electrode (12), and that forms a capacitance with ground.